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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,646	03/03/2003	Shi-Wai S. Cheng	GP-302784	4399

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EXAMINER	
GREENE, JASON M	

ART UNIT	PAPER NUMBER
1724	

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/763,646	CHENG, SHI-WAI S.	
	Examiner	Art Unit	
	Jason M. Greene	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 03 March 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3/10/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Ichikawa et al.

With regard to claim 1, Ichikawa et al. discloses a particulate filter for an exhaust system (10) configured to manage an exhaust flow comprising a housing (not numbered, part of the exhaust system 10), and a wall-flow filtration element (12) contained within said housing, said wall-flow filtration element having pores defining a porosity sufficient to trap exhaust particulates and to pass ash particles in Figs. 1-3 and column 1, line 62 to column 9, line 27. Since the filtration element is a monolithic wall-flow element comprising porous walls and porous end plugs, the pores will inherently trap exhaust particulates above a certain diameter while allowing ash particles below a certain diameter to pass.

With regard to claim 2, Ichikawa et al. discloses the wall-flow filtration element comprising an inlet channel with an inlet port at one end and a first end-plug (21) at the opposite end, and an outlet channel with an outlet port at one end and a second end-plug (22) at the opposite end, said inlet channel being in fluid communication with said outlet channel, said wall-flow filtration element arranged to receive the exhaust flow at said inlet port and to discharge the exhaust flow at said outlet port, and the first end plug having a greater porosity than the second end plug in Fig. 1A and col. 4, line 33 to col. 5, line 20. Specifically, Ichikawa et al. teaches the second end plug being formed from the same material as the filter walls and having a porosity of 45 percent and the first end plug being formed as sealing member number 7 and having a porosity of 55 percent.

With regard to claim 3, Ichikawa et al. discloses the wall-flow filtration element comprising a ceramic monolithic structure having a plurality of porous internal walls (20) defining said inlet and outlet channels, said inlet and outlet channels being separated by said porous internal walls to permit exhaust flow through the pores between the inlet and outlet channels in Fig. 1A.

With regard to claims 4-6, Ichikawa et al. discloses the pores of the first end plug being configured to trap exhaust particulates and permit leakage of ash particles, wherein the first end plug is configured as sealing member number 7 and has a pore size of 50 micrometers in col. 5, line 12.

With regard to claims 7-9, Ichikawa et al. discloses the housing comprising first and second ends, the inlet port of said inlet channel being at said first end of said housing, and said outlet port being at said second end of said housing, wherein the total surface area of the first end plug is substantially less than the total surface area of the internal walls, and wherein said inlet and outlet channels and said internal walls are arranged parallel to the exhaust flow in Fig. 1A.

With regard to claims 10 and 11, Ichikawa et al. discloses a particulate filter for an exhaust system (10) configured to manage an exhaust flow comprising a housing (not numbered, part of the exhaust system 10) having a first end and a second end, a wall-flow filtration element (12) arranged within said housing comprising a ceramic monolithic structure having a plurality of porous internal walls (20) defining said inlet and outlet channels, said inlet and outlet channels being separated by said porous internal walls to permit exhaust flow through the pores between the inlet and outlet channels, said inlet channel comprising an inlet port at one end and a first end-plug (21) at the opposite end and configured to receive the exhaust flow at said inlet port, said inlet port arranged at the first end of the housing, an outlet channel comprising an outlet port at one end and a second end-plug (22) at the opposite end and configured to discharge the exhaust from said outlet port, the outlet port arranged at the second end of the housing, and the first end plug having a greater porosity than the second end plug in Figs. 1-3 and column 1, line 62 to column 9, line 27. Ichikawa et al. teaches the second

end plug being formed from the same material as the filter walls and having a porosity of 45 percent and the first end plug being formed as sealing member number 7 and having a porosity of 55 percent.

3. Claims 12 and 14-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ichikawa et al.

With regard to claims 12 and 14, Ichikawa et al. discloses a method for filtering particulates of an exhaust flow of an exhaust system comprising receiving the exhaust flow at one end of a particulate filter (12) having a ceramic monolith structure with porous walls (20) defining inlet channels and outlet channels, the inlet channels each having an inlet port at one end to receive the exhaust flow and a porous plug (21) at the opposite end, the outlet channels each having an outlet port at one end to discharge the exhaust flow and an end plug (22) at the opposite end, filtering the exhaust flow at the ceramic monolith structure as the exhaust flow passes through the porous walls (20) between the inlet and outlet channels, trapping exhaust byproducts at the porous walls, the end plugs, and the porous plugs, trapping ash particles at the porous walls and end plugs, and passing ash particles through the porous plugs (due to the higher porosity and larger pore sizes of the porous plugs), and discharging the exhaust flow at the outlet ports in Figs. 1-3 and column 1, line 62 to column 9, line 27.

With regard to claims 15 and 16, Ichikawa et al. discloses passing ash particles

through porous plugs configured as sealing member number 7 having a pore size of 50 micrometers in col. 4, line 45 to col. 5, line 15.

With regard to claim 17, Ichikawa et al. discloses receiving the exhaust flow in a direction parallel to the inlet and outlet channels in Fig. 1A.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa et al.

Ichikawa et al. discloses regenerating the ceramic monolith structure using blowback in Fig. 1B and col. 3, lines 58-63.

Ichikawa et al. does not explicitly disclose the method of claim 12 further comprising the converting the trapped exhaust particulates into ash particles.

Ichikawa et al. teaches it being well known to regenerate ceramic monolithic exhaust filters using combustion in col. 1, lines 5-60.

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to incorporate the combustion regeneration of Ichikawa et al. into the exhaust filter of Ichikawa et al. to provide for removal of exhaust particulates which are not removed during the blowback operation.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Ishihara et al., Dimick et al., Abthoff et al., Noda et al. and Saito et al. references disclose similar methods and particulate filters.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason M. Greene
Examiner
Art Unit 1724

2/18/05

jmg
February 18, 2005